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Membranes



Out of Order

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Membranes Out Of Order. Leaking art, science and existence



Membranes Out Of Order (MOOO) was a year-long research project that culminated in an exhibition held at Kunstquartier Bethanien Berlin from December 2022 to January 2023. *MOOO* responded to ethical and cultural challenges posed by the interplay of biotechnology and ecology and traced a trajectory through our poetics and provocations by featuring our recent and previous works. Artworks of more extensive production were placed in dialogue with pieces that were realised with simple resources, experimental materials, and prototypes to highlight the core themes of our practices. What emerged was a landscape of micro- and macro-ecologies where common understandings of life and death were scrutinised. Intertwined, all the exhibited objects revealed and discussed more-than-human embodiments, vulnerabilities, and taboos.

In the project, membranes – cellular membranes, microbial cellulose, skin, bodies, and parafilm – were both an artistic material and a metaphor, a layer that separates while allowing exchange. Membranes can be translucent and flexible, but they can also be broken and need stitching. They permit encounters yet resist clear-cut distinctions.

The title *Membranes Out Of Order* reflected the liminality of our approach and the materiality of our works. Membranes can be understood as liminal, because they are active in-between, divide, or mark a border (in Latin *limen* means a threshold, that which is in-between but is also a barrier and a boundary). Membranes determine whether exchange is possible. In organic entities such as cells, membranes form a protective border and, at the same time, channel a selective exchange between the inside and the outside, remaining penetrable and leaky. On philosophical and

biological levels, they offer a milieu for multitudes. From an aesthetic viewpoint, membranes evoke imaginations of softness and fleshy colours, which – depending on their staging and context – trigger feelings that range from disgust to tenderness, to eroticism. Membranes can be transparent and reveal the 'other side,' or they can be opaque and hide it.

In technical devices such as speakers, membranes are an interface that translates and amplifies physical waves and makes them audible. In a biological laboratory, Petri dishes, test tubes, flasks, and other containers take over the function of membranes. They prevent evaporation and protect the contents inside against contamination and the handler outside against potential health hazards. One can pipette a substance or a liquid culture from one flask into another; one can also close the flask and move it. These technological membranes in the lab make it possible to relocate living matter from the scientific to the artistic context. Working with organic membranes enables artists to manipulate life processes by means of diverse kinds of (bio)technology. The artworks on display in the show explored the interpenetration of organic and technological membranes.

The title of the show referred to our hands-on experimental approach, which incorporated biological processes in art and at the same time confronted us with the 'out of order' condition: uncertainty, failure, surprise, and disobedience, all of which are intrinsic to being alive. Our reflection on membranes then extended to encompass the narrative and design of the show. The exhibition was arranged across rooms where membranes merged and were inseparable as part of the exhibition architecture, while in others they were embedded in our works as sites of multispecies encounters or were dissected and meticulously examined.

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Though coming from different backgrounds, we embrace approaches that converge towards a critical reading of what it means to be posthuman bodies in times of pervasive biotechnology, digitalisation, and ecological complexities. Trained as a sculptor, Karolina Żyniewicz moved on to cultural studies to pursue practical and theoretical work; Theresa Schubert has widely practised at the intersection of new media art and bioart in academia and the arts; and Margherita Pevere started her journey studying political sciences with a focus on the environment but then turned to experimental art. None of us had any formal scientific training, yet we all chose to work in scientific laboratories to investigate inside and outside ecologies. Our PhD dissertations further extended our theoretical research as inextricable from our artistic practice.

We manipulate life processes and transformations across scales, from the microscopic to the systemic and ecological. Many of our projects have been carried out in collaboration with bioscientists and programmers. Others have involved manipulation of organic and technological matter grounded in DIY and DIT attitudes (including biohacking). Being dedicated 'geeks' in our work, the three of us share a similar curiosity, authenticity, and dedication to our undertakings.

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Alongside full-fledged (though sometimes revamped) artworks, *MOOO* made room for items rarely presented to the audience by putting on display research materials, such as sketches and lab journals, and laboratory equipment: used Petri dishes, vials with dead cells, and microscopic slides. There were also our drawings and a selection from our publications, some of our failed experiments, and various specimens we had collected. These materials and artefacts revealed how much labour must be done before an artwork takes its final shape. Showing them also tied in with the idea of art as a process that is not capped

in and by the exhibited piece, but rather entails an excess, a recalcitrance against being contained in the final artwork. Such a constellation of materials and artworks shows hypotheses, potentialities, failures, and ramifications.

MOOO granted visibility to creatures that had been excluded from human care and overlooked from the anthropocentric perspective. They were relocated from the blind spots to the very centre, becoming objects of aesthetic and discursive attention. Their lively presence is crucial in long lasting projects, in the gallery, and in the collections of specimens and curiosities usually lingering in storage rooms. The exhibition gave the rejected living beings an opportunity to be acknowledged and needed.

The *MOOO* artworks and research materials unfolded 'liminal states' (Żyniewicz 2023) in two senses. Firstly, they inhabited and highlighted membranes. Secondly, they operated across and co-vibrated with various disciplines (ibid: 93) in a transdisciplinary manner, without fully plugging into any of them (Groth et al 2020). In our work, assuming a liminal position is an epistemological statement that rejects disciplinary dogmas and weaves together knowledge and methodologies from different fields, instead.

Art history has a rich lineage of examples that harness cultural taboos or outrageous materialities, which may evoke disgust in both practitioners and audiences. These notions pervaded *MOOO*, taking shape in the liminal states that resurfaced in many of the exhibits, such as in the animal corpses in our collections. They emerged in the gestures of blood taking and biopsy (*safe suicide* and *mEat me*) and in vaginal cell samples (*W.02*). Other pieces explored death and decomposition. As we watched the viewers, we could see that while those aspects of our practices triggered fear or repulsion in some audiences, our artistic vocabulary helped others reconcile with issues otherwise too 'out of order' to be addressed. The art context helps

us recalibrate the narrative of culturally rejected forms and gestures. Making the discarded things a matter of art, we try to call into doubt the social and cultural membranes of taboos that have calloused over. These operations may make our work hard to cope with for many audiences. If our 're-membraning', that is, re-weaving narratives and relations, arouses controversy, uncomfortable questions and topics help us spark urgent and fruitful discussions. In our vision, art is not primarily decorative or entertaining. We want our art to really matter.

ON CURATING

For co-curating *MOOO*, we researched each other's practice, thus moving beyond our individual work as the sole focus. Our common experience of working across art, academia, and biolab practice helped each of us critically read the work of the other two. The process of co-curating responded to the feminist idea of situated knowledge, which calls for acknowledging the dynamics of power in knowledge production (Haraway 1988). Hence, our research was coupled with a scrutiny of power relations between artworks and research materials and between us as practitioners and the multitude of organisms in our works.

This method resulted in framing the exhibition as an explicit dialogue in which our respective works talked with one another. They not only conversed, though; sometimes, they were also metaphorically dissected on the same table or even cross-pollinated. Both in the research phase and in the exhibition, *MOOO* foregrounded the processual quality of our practice as artists. Research materials catalysed a year-long curatorial process that culminated in the exhibition. It thus reinforced the understanding of art as a mode of knowledge production, simultaneously unfolding aesthetic and technical expertise.

In the curatorial sessions, we opened our drawers and storage boxes; this afforded a unique experience of past projects, as they rested away

from exhibition settings, with the messiness of notes, prototypes, and drafts that retreated from the audience's gaze. The pieces in exhibitions [1] can be viewed as occasional manifestations of an artist's labour: timed, polished, arranged, elevated, and illuminated. Yet, most of the time, artists keep their works as disassembled entities that are majestic in their dormancy and fragile in their materiality. Messy, perhaps. Performative, certainly. Our show was structured around the idea of the liveliness and impermanence of the artworks.

ON MAKING

Artistic practice with living matter involves an inescapable and distinctive complexity that coalesces the artist's intention, the processuality of materials and organisms, the requisite transdisciplinary knowledge, and sometimes legal frameworks and biosafety protocols related to obtaining permissions to exhibit living artworks.

In our practice, we have learnt that time and processes independent of the artist's intention are an immanent part of it. Production hinges on the organism's readiness to 'cooperate' and grow, whereas we as artists have little influence on the time it needs to do so. At the beginning, having a project idea gives one an illusion of control, which is slowly dispelled by the unpredictability of life. This poses extra challenges to artists who seek to translate their intents or themes in exhibitions with living artworks. One of such difficulties is the fact that visitors will not be able to recognise changes in the pieces or witness their completion if they take days or weeks, or if they are perpetual, or if they are simply imperceptible to the human eye. This can be sometimes redressed by technologies, such as time-lapses, which help the audience experience the full cycle of the work. Cells perfectly exemplify challenges of working with biomatter, because they raise several questions and problems, including the issues of size ratio, perspective, the handling of time, and the plasticity of an ever-changing fluid

substance. When working with cells one faces the entropy of life and comes to understand that every organism is an outcome of a network of relations. Technological extensions, for example microscopes, enable us to see particular shapes and dynamics of cellular motion. Scaling helps us, humans, approach the complexity of life and respect it.

Such a complexity resists simple methods or certainty. At the same time, this property entails what scholar Marianna Szczygielska has defined as the 'epistemics of wonder' [2], where wonder describes cognitive curiosity, fascination with life, and openness to surprises coming from experimentation and observations of natural processes. These capabilities and predispositions are common to both artists and scientists.

Working on life and with living entities calls for ethical reflection. As artists, we bear responsibility for the organisms we show, which mostly prompts profound self-reflection on our choices. Through a long and close engagement with an organism, one may develop a stronger personal attachment to it or to the ecological environment as a whole. Empathy is a notion that cannot be ignored in this relation, since, as artist George Gessert has concluded, 'whatever the creature experiences becomes part of that work and its meaning' (Gessert 2011: 3). This empathic engagement may extend onto the audience as well, which prepares the ground for an emotional connection to the organism (Schubert 2018). Every visitor encounters living matter at a different moment in their and its life, which results in individual perceptions. Visitors are thus not only observers of growth, decay, and death but also participants in an ongoing open experiment and co-creators of meaning and affect.

Death, with its processuality, is another immanent presence in and sometimes a consequence of art practice involving biomatter. Deaths can be various: death of a culture caused by contamination, death of a sample killed

when no longer 'needed,' death of biomatter in sterilising it for a show, death of a culture during a show. Whether intended or accidental, death must be taken into account as a probability. It is an artform where life itself becomes an actor. Marietta Radomska has proposed the concept of the 'non/living' to suggest how a bioart work brings to the fore the enmeshment of life and death and the processuality of matter (Radomska 2016). In its own way, *MOOO* was a *theatre of the non/living*. Many of the artworks exhibited in the show featured materials that had been found dead, such as the collected specimens, cell samples from previous projects, and the cells in *safe suicide*. Others intervened in different stages of life-and-death entanglements; for instance, *mEat me* included biomatter whose life processes were suspended under dry ice, and *W.O2* and *Hylē* comprised living cultures. These various stages are inextricably conjoined, though, as all of them are never definitive and always in flux.

At play here was also the set of norms for exhibiting certain sensitive materials, such as GMOs, living cells, and biological matter of human origin. Such regulations tend to vary widely across the world. Having reviewed twenty years of bioart exhibitions, curators Olga Majcen Linn and Sunčica Ostoić have wondered whether there is a need for a shared protocol or guidelines, including legal provisions, for producing and displaying such artworks (Majcen Linn & Ostoić 2022). As of today, no international guidelines of this kind exist, which makes bioart shows a matter of the experience and dedication of the venue, the curator, and/or the artist. Relevant guidelines could support the various actors who grapple with the complexities of developing and showcasing bioart works. As three of the artworks in *MOOO* featured human cells, we cleared the exhibition plans and requirements with the Landesamt für Arbeitsschutz, Gesundheitsschutz und technische Sicherheit Berlin and complied with the hygiene protocols the office indicated.

ON OPENNESS

Art practice with non/living and liminal matter taught us the epistemics of wonder. It also taught us to understand art as a form of philosophical reflection. Drawing on the notion of membranes as liminal entities of exchange and protection, the *MOOO* artworks showed materials were in perpetual becoming. Just like the microorganisms that consumed the flesh in *Non omnis moriar* and the lichens that reclaimed the sculpture's surface, most of the artworks displayed a radical openness to other species, to becoming, and to re-thinking. Their multifaceted character defied normativity and clear-cuts distinctions, celebrating a radical queer openness [3], which became tangible in and through their nuanced relations with other species and microscopic entities. Firstly, the artworks took our bodies as sites of experimentation that exceeded human-only dimensions and rather seemed to respond to Patricia MacCormack's call for 'ahuman' ethics (MacCormack 2020). Openness challenged human supremacy. Secondly, radical openness and vulnerability became epistemic positions (Pevere 2022). Inhabiting a membrane cast into relief the involvement of entities in vulnerable exchanges with each other.

When we work with biomatter coming from our own bodies (*mEat me*, *safe suicide*, *The Last Supper*, *Wombs*, *Impromptus*), self-experimentation challenges the taboos lingering in the Global North: the denial to acknowledge that animals are treated as an exploitable resource, self-determination and the right to suicide, and the fluidity of gender. Crossing membranes around taboos encourages inquiry into ecological imbalances and a rethinking of relations. Even *safe suicide*, a work designed to address the human death drive, gave room to the ecology of cellular life and death, distinguishing between apoptosis and necrosis (two different modes of cellular death), which Żyniewicz sought to understand and master. *mEat me* and *Impromptus* confronted

the audience with the taboos of auto-cannibalism and the secrecy of gastric juice, respectively.

The works addressed industrial farming as a major source of ecological injustice. Schubert presented a possibility of producing food from one's own muscle cells; Pevere mingled two apparently unrelated elements: film strips and gastric juice. Truth is, cinema is made of countless metres of animal gelatine containing silver salts or dyes. In the exquisite visual art, animal bodies are missing from the picture although it is literally made of them. The *MOOO* artworks showed how those complexities were part of everyday experience, for example, in *Wombs*, which expanded on the queer ecologies of hormonal treatment, where taboos held hands with daily life. As curator Daniela Silvestrin said during the artist talk in our programme [4], the artworks on display did not just aim to unsettle, but rather offered possible ways to address those taboos by shifting the focus and perhaps to dislodge the human from its undeserved position of supremacy, at least for a moment.

Inhabiting membranes became our methodological approach geared to acknowledging vulnerability as part of the game. Making membranes perceivable thus became a healthy reminder that interdependencies of life and death, of biotechnology and everyday experience, of art and everyday life entailed a possibility of hurting, unsettling, and displacing. However, rather than attributing vulnerabilities to the other (whether an animal or a cellular culture), the artworks in the show reclaimed the possibility to be vulnerable. Schubert offered her body for food to challenge industrial farming; Żyniewicz offered her genetic material to produce GMO yeast, violating a taboo in doing so; Pevere chose alliances with slugs, animals that are mostly regarded as a pest, to spark a discussion on molecular ecologies. Reclaiming vulnerability is an ethical and epistemic gesture that shakes hierarchies.

A WALK THROUGH MEMBRANES OUT OF ORDER.

Membranes Out Of Order was designed by set designer Anna Maddalena Cingi in collaboration with us as an exhibition embedded in the unique architecture of the Project Room at Kunstquartier Bethanien. Working with a theatre designer rather than a fine-arts practitioner helped us emphasise the narrative of the project. At the same time, it gave us an opportunity to reflect on the viewpoint of the spectator, a theme that lies at the core of both Cingi's work and our approach to knowledge production. The gallery consists of six interconnected rooms accessible from the central passageway. This posed a challenge since no linear walk through that space was possible, as one had to turn back time and again and pass through doorways to see the complete show. When pondering this layout, we realised that, to us, it evoked the image of an organ made of several kinds of tissue or a cellular arrangement. The exhibition design aimed to take the audience through vulnerability, obsessions, monumentality and invisible microscopic views by means of selected video pieces, sculpture, photography, laboratory journals and drawings. In some rooms, our authorship as individual artists was clearly recognisable, whereas in others, our materials, sketches and experiment artefacts blended, abandoning the entrenched convention of artist-identifying exhibit labels in favour of a collaborative approach.

1_ Visitors accessed the show by stepping into the realm of our obsession, both figuratively and materially. Four cabinets on the walls of the elongated entrance hosted items from the artists' personal collections of organic material samples along with laboratory paraphernalia, such as Petri dishes, test tubes and jars. The displays were made of deep wooden frames covered in thin steel mesh and illuminated with tube lights from the inside. The mesh formed the membrane

of the display, where some objects were placed inside and some outside. The laboratory flasks contained cultures of bacteria, yeast and fungi or their remnants from experiments performed years before. They shared space with dead insects and other material objects compulsively produced and collected by the artists. The staging of the **obsession room** was deliberately devoid of any systematic order, bringing together and mixing things contributed by each of the three collectors.

2_ The **big form room** was dedicated to artworks and installations. Some artworks, for example *safe suicide* and *W.02*, were displayed in their final form, while others, such as *Non omnis moriar*, were exhibited so as to emphasise their processual nature. Yet other works, for instance *mEat me* and *Lymph*, were shown in revamped installation versions which still retained traces of their original performance character. Some of the artworks incorporated living matter (*W.02*, *Hylē* and *mEat me*), while others retained traces of life that the artists had probed in and for their development (*safe suicide*). This variety was underlined by the explicit exhibition strategy we adopted: the monumental presence of *Lymph* abutted the miniature auto-cannibalistic food samples of *mEAT me*; the sculpturally-carved decay of *Non omnis moriar* was put in dialogue with the aseptic cell incubator of *W.02*.

3_ The room of **the micro world(s)** featured photographs of microscope images and macro photography along with lab journals and sketches exhibited in display cases. The audience had an opportunity to explore the microstructures of membranes magnified and removed from their context, thus sparking free associations. Inquisitive visitors were invited to retrace and fathom the interconnectedness of these exhibits and the artworks on display in the other rooms by consulting the lab journals that comprised studies for and documentations of the development of the latter.

4_ The **room of membranes** was an installation purpose-built for the show. Three membranes of metal mesh were suspended from the ceiling to the floor. Each artist layered one of them with a poetic mind-map that included materials, notes, sketches and copies of drawings. The semi-transparency of the membranes produced the effects of overlapping, superimposition and permeation, in this way implying their mutual relations. The visitors could walk around and in between them, view the assemblages from different angles and thus glean ever-new information from and discover ever-new meaning in them. The notes and drawings were partially covered in translucent parafilm, which metaphorically protected the knowledge and experiences compiled by the artists. Additionally, a video projected through the three membranes braided another narrative thread into the show by displaying previously unpublished microscopic videos.

5_ Behind the membrane room, there was a **video room** where audio-visual works and video documentations of performances and larger installations were screened on the wall. Besides eight looped video films, there were also objects displayed on an illuminated desk: the beer bottles and lyophilised modified yeast from Żyniewicz's *The Last Supper* and the original 8 mm film strips that Pevere had treated with gastric juice for her *Impromptus*.

6_ The room dedicated to reading, reflection and communication had a setup reminiscent of a **reading club**, with a desk with stacks of publications, drawings on the walls and comfortable seats. Publications included exhibition catalogues, books, research papers and interviews. The room was also dedicated to accessibility facilitation and comprised tactile representations to be explored during guided tours. The room was designed as a space for the artists and visitors to meet, talk and reflect.

Notes

[1] See the artwork index for a complete list of the titles and works displayed at MOOO.

[2] Panel 'Conversations in Art and Science', MOOO, 7 January 2023. Audio recording on the project website (<https://m-ooo.info>) and <https://soundcloud.com/membranes-out-of-order/panel-conversations-across-art>.

[3] We understand 'queer' as an instance that challenges normativities as established by the classical Western binaries, including nature/culture (as in queer ecologies, see Mortimer-Sandilands & Erickson [2010]) and life/death (as in queer death studies, see Radomska, Mehrabi, & Lykke [2020]). While acknowledging the primary focus on gender, queer is thus a fertile epistemic tool for further eroding Western binaries and normativities. See also Pevere (2023).

[4] See the audio documentation on the project website (<https://m-ooo.info>) and our soundcloud channel (<https://soundcloud.com/membranes-out-of-order/membranes-out-of-order-artis>).

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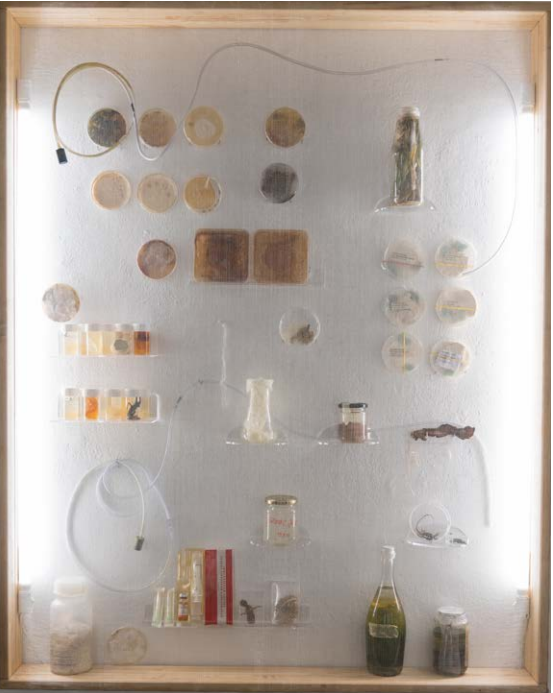
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Ultimately, Schubert, Peverere and Żyniewicz are dedicated to the same goal of exposure and subversion of the dominant narratives of the institutions, mechanisms and conventions of biopower.

OLGA MAJCEN LINN

Between Nature and the Lab



16 Membranes are generally conceptualised as a thin film-like structure that simultaneously separates and protects cells, defining the shape of the cell's mucous plasma. At the same time, membranes are lubricated and porous. They can potentially receive as well as filter the content, absorbing and circulating it. Membranes behave like liminal thresholds at the microscopic scale of the cell. The title of the exhibition, *Membranes Out Of Order*, suggests a deep and detailed cellular-level perspective on each of the three artists' work, combined with a very intimate glance into their distinctive creative practices. Concurrently, the title refers to an avid interest in cells and biomedica art in general that they have in common. When Margherita Peveri (IT/DE), Theresa Schubert (DE), and Karolina Żyniewicz (PL/DE) shared their cell research with each other, the curating of each other's work commenced. The three artists adopt a similar exploratory and research-oriented approach to art making. When

working together, they reveal their methodologies and abandon their artistic autonomy and secrecy. For Peveri, Schubert, and Żyniewicz, the logic of interoperability and curation was sparked and furthered by the fact that they enjoyed some common ground. The three are all fascinated by and engrossed in natural processes, whether intrabodily metabolic transformations, slow environmental processes, or symbiotic interactions among various organisms and environments. Taking natural processes as their departure point, they head in various directions, ranging from the creation of data archives to the deconstruction of political patterns implicated in these processes.

LIQUID STORIES: SUBVERTING BOUNDARIES

Theresa Schubert's latest artistic pursuit centres around the geological formation of

glaciers (*Glacier Trilogy*, 2022). Situated at high altitudes and in polar environments, glaciers are the Earth's enormous water reserves. Hundreds or even thousands of years old, their crystal structures can be regarded as a conspicuous testament to planetary history and past life. *Part 2* of Schubert's *Glacier Trilogy*, which was inspired by the ecological problem of melting glaciers, is based on glass glaciers contrived in the likeness of actual landscape forms: glacier tongues. Schubert's exquisite sculptures of blown glass contains ice core water inside, creating a cherished memory of this valuable source of data. As the crystal ice structures of glaciers preserve information about the time and the history of our planet, from organic life to climate change, Schubert's glass objects seek to protect glacier meltwater and the knowledge it holds. This subtle display highlights the fragility of the Earth, but also evokes the sturdiness of its prehistoric past embedded in glaciers.

In her earlier projects, Schubert worked with biomedica. In *mEat me* (2020), she donned an activist's mantle and looked into meat production and its catastrophic effects on climate change. Engaged with the idea of animal-free food alternatives and self-sustainable nutrition, the artist extracted serum from her own blood and used it to grow her muscle cells, in this way creating human meat. This posthumanist project exposed the hypocrisy of the food industry, where the purportedly 'victimless' alternatives still rely on the use of animal foetuses, and invited the audience to consider different solutions, with our own bodies as potential sources of food. Schubert has also worked with algae (*Hyle*, 2022; *ooze*, 2021), fashioning a powerful green liquid bioreactor which enables oxygen and CO2 interchange, and with fungi and mycelia, incorporating them into experimental sound installations (*Sounds of Fungi: Homage to Indeterminacy*, 2020). In exploring various themes, she not only spotlights a range of peculiar phenomena but also strives to understand the precarious and delicate

conditions that make life on the Earth possible in the first place. This brings the concepts of Gaia and symbiogenesis into play. Biologist Lynn Margulis explains: 'The Gaia hypothesis is not, as many claim, that "the Earth is a single organism." Yet the Earth, in the biological sense, has a body sustained by complex physiological processes. Life is a planetary-level phenomenon and Earth's surface has been alive for at least 3,000 million years' (Margulis, 1999, 143).

Margherita Peveri also uses liquids to tell her compelling story, but hers is a narrative of a very different kind of liquid. Rather than sounding the external waters of glaciers, her work examines internal fluids of leaky bodies: blood, mucus, sweat, and urine. She also probes the effect that pharmacological or biochemical transformations of the human body can have on the environment and on other living creatures (*Wombs*, 2018–2021). She rejects the view of the human body as a complete and self-enclosed system and champions the idea of its connectivity and commingling with the environment. In this sense, any alteration to or rebalancing of the body affects everything around us. In addition, Peveri engages her own body in interplays with other species (for example, hermaphrodite slugs), in this way generating various posthuman performative strategies. Having taken hormonal contraception for years, Peveri became a biochemical cyborg. Her body changed its functionality, which has provided her with a viable position from which to raise the question of how the organism as a whole implements such changes at the molecular level, and how hormone treatments in humans and even more so in farm animals impact the environment.

Inside an artificial external glass 'womb,' Peveri grew her vaginal epithelium cells together with embryonic slug cells and in this way crafted a hybrid ecosystem that suggested a resemblance between the hermaphrodite slug and herself, a queer person who took contraceptives. While studying hormones, she realised that similar

molecules triggered the endocrine systems of different organisms. For example, artificial hormones for the treatment of menopausal women are obtained from various animals, such as mares. Also, recent research has found that gastropods absorb hormones from their environment, but it is yet to be established whether and how their endocrine system responds to the exposure. Given this, it is rather unclear at the moment whether and how such exposure may influence the physiology of gastropods. Most importantly, the various possible responses to the same molecules and the different reactive patterns are amplified in times of anthropogenic environmental changes.

Eugene Thacker argues that there is an inward-turning and an outward-turning aspect of thinking about life:

The inward-turning divides, orders, and interrelates species and types; the outward-turning manages boundaries and positions the living against the nonliving, making possible an instrumentality, a standing-reserve. The inward-turning aspect is metabolic, in that it processes, filters, and differentiates itself internally; it is the breakdown and production of biomolecules, the organization of the organs, the genesis of species and races. The outward-turning aspect is immunologic, for it manages boundaries, exchanges, passages; it is the self-nonself distinction, the organism exchanging with its environment, sensing its milieu, the individual body living in proximity to other bodies. (Thacker, 2016, 124)

The Deleuzian concept of 'milieu' became the focal point of Pevere's piece titled *Wombs*. Seemingly enclosed and impermeable wombs are metaphors for our bodies in general – bodies that leave traces, bodies that are penetrable, bodies that may host other beings. Pevere's corporeal experiments challenge the illusion of individual and separate existence of living beings.

Karolina Żyniewicz's 'liquid story' relies on genetic modification. She uses the technology of brewing, the first human engineering method, as it were. In her piece titled *The Last Supper* (2018), Żyniewicz leveraged the powerful religious iconography of Christian sacrifice by offering up her own genetic material. Having used her own gene to genetically modify yeast, she produced beer and bread and then served them to the audience in the manner reminiscent of Holy Communion. The project was developed in a professional lab with the help of scientists. The artistic situation also took place inside the lab, where a meal was held with a regular audience, who could participate, interact, and actually consume the beer and bread. This solution was resorted to in the wake of the failure to obtain permission to take the genetically modified products out of the lab. In her work *Signs of Time: Collecting Biological Traces and Memories* (2021, in progress), Żyniewicz has been constructing a complex and dynamic pandemic archive. The archive was initiated by picking disposed face masks off the streets of Berlin, as a symbol of a fearful time that affected people's communication and interaction. These anonymous and potentially contagious biological traces were stored in laboratory tubes. In the second stage of the project, the artist began to collect used masks from individuals who were wearing them and to interview mask owners. The idea behind the interviews was assembling various memories for the creation of a collective memory archive. Describing the stages of working on the discarded masks, Żyniewicz explains: 'I plan to investigate biological remains from the collected masks, the remains coming from both the human body and the environment. However, I am not interested in the human genetic material but in non-human agents (such as skin microbiome).'

In this biohazardous project, Żyniewicz rethinks human correlations and interconnections with non-human nature, the same nature that lives in our mouths, in our guts, and in other parts of our bodies and that symbiotically aids or disrupts

our metabolic processes. Identifying non-human living beings raises a political issue of boundaries and protection. In order to keep humans safe from the virus, the masks carry bacteria and other 'personal' microorganisms.

The concept of life no longer rests comfortably on the axiom of the individual or the singular, but is premised on the coexistence of symbiotically intertwined living beings. In this sense, one life cannot be easily separated from all life. Thacker proposes viewing life as extrinsic and peripheral, rather than centralised and axially organised:

An epidemic cannot be limited to the individual organism, for its very nature is to pass between organisms, and increasingly, to pass across species borders (and national borders). What is the unit of analysis for an epidemic? (Thacker, 2016, 124).

RESEARCH METHODOLOGY: DRAWING, WRITING, ARCHIVING, PACKAGING, CURATING

In order to analyse, contextualise, and position their work, Schubert, Pevere, and Żyniewicz applied methodologies that can be thought of as constitutive rather than incidental. Drawing asserts itself as a relevant medium into these elaborate research projects, bringing to mind the imagery crafted by the scientists of the pre-photography era, who had to illustrate by hand and archive their botanical, geological, and zoological objects of interest.

The practices of these early scientists and the three artists indicate a common desire to integrate various disciplines and to implement and elucidate ideas by manual and analogue means – using handwritten notes and drawings instead of cutting-edge mathematical data visualisations. This 'pre-digital' approach affords a more personal and direct insight into the formation of ideas and concepts. At the same time, however,

the three artists all work in labs, collaborating with numerous researchers and enjoying the benefits of technologically collected data.

In 2002, Nicolas Bourriaud re-cast the term 'post-production' to depict using society as a catalogue of forms and making objects that recycle other objects. Unlike this contemporary artistic practice, the approach espoused by Schubert, Pevere, and Żyniewicz draws on science. Laboratory data and analysis undergo a bold transformation in the exhibition setting, where they are forged into an imagery that is both imaginative and sensorial.

The packaging of objects is another common device mobilised by the three artists, who regularly make use of standard laboratory equipment, such as Petri dishes and test tubes. While often a necessity, seeing that biomedica would not survive outside, such choices are also deliberate and emphasise the chemistry involved in creating the work. Żyniewicz stores face masks that hold people's body secretions and micro flora, combining them into an archive preserved in sterile plastic and test tubes. She also conveniently serves her own genetically modified beer in test tubes. Schubert uses test tubes and other lab paraphernalia in the *Box* experiment, in which fungi mycelia become exposed to different sound frequencies. She also builds large cylindrical glass containers with tubes for her algae bioreactor. Pevere displays lab accessories and altered lab glassware in *Wombs*. Besides chemistry glassware, hand-blown glass containers are made and featured in Schubert's *Glacier Trilogy – Part 2: Earth Memory* and in Pevere's *Wombs*. These glass objects enhance the sense of the fragility, value, and hybridity of the environments and relationships captured in the installations. If the three artists rely on lab dishes in archiving biomedica (e.g. face masks, biological traces), they create other archives as well. They meticulously record, list, and describe data from other segments of the knowledge they generate (sounds, documents, thoughts, interviews, etc.)

in an effort to approach memory as a cognitive repository. Their archives are informed by revised rules stemming from their own narratives, rather than abiding by chronological sequences or alphabetical orders.

Last, but not least, Schubert, Pevere, and Żyniewicz adopt a partly scientific and partly curatorial position as pivotal to their overall artistic practice. The procedures that structure their projects are closely associated with lab experimentation and research, as well as with public exhibition and mediation. This complex amalgam is achieved through historical research, constructing discursive apparatuses, testing the lab infrastructure, documenting, administrating, archiving, managing collections, and designing elaborate, consciously arranged exhibitions in dedicated spaces to create a certain aesthetically deliberate whole.

THE POSTHUMANISTIC PARADIGM

Loose connections can be found between Schubert, Pevere, and Żyniewicz, three artists who share an impulse to integrate art and science. *Membranes Out Of Order* suggests multilateral flows and the melting of boundaries between their respective artistic pursuits. Their common interests include scientific inspiration, biomedica, the health of the organism, the health of the environment, processual thinking, and collaboration with labs and outside partners. However, each artist has her own specific approach and her own particular obsessions.

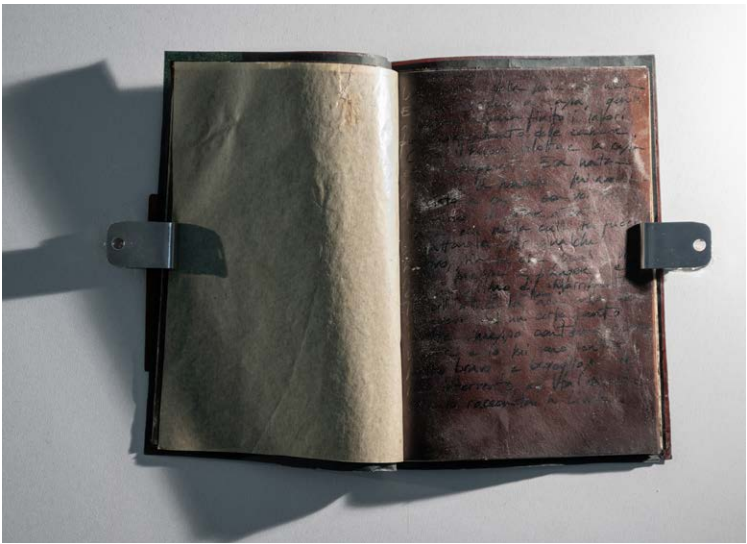
In her works, Theresa Schubert strives to spin a personal narrative on the networks of space and time. Her exhibiting methodology often involves a translation of one language or code into another. Sound and state-of-the-art technologies, such as artificial intelligence, hold a significant place in her practice. Even though the audience experience her pieces emotionally through the beauty of image and sound, her practice is grounded in technology,

and her aesthetics exemplifies a modern techno approach.

Margherita Pevere's aesthetics communicates archaic beauty. Her drawings and handwriting are complex, sophisticated, and warm. This passion can be felt not only in her research process but also in the final outcomes. Often the desire to tell a story comes from an emotional and personal perspective, so it is no surprise that her own body takes centre stage.

Karolina Żyniewicz embraces a distinctive participatory approach. While Schubert explores the bigger picture of the Gaian structures and systems, and Pevere unveils the wonder of metabolic processes on a molecular scale, Żyniewicz is preoccupied with other people, their stories, their biomedica. She becomes a recipient and transmitter of personal and community storytelling.

Ultimately, Schubert, Pevere, and Żyniewicz are dedicated to the same goal of exposing and subverting the dominant narratives of the institutions, mechanisms, and conventions of biopower. In their different ways, they each grapple with the bio-philosophical questions of life. Their efforts range from pondering human life as cooperative and symbiotic (as exemplified by the complex interplay of microorganisms behind metabolic processes) to investigating the body in its connection with and dependence on the environment. All of these foci and the theories that power them consider biopolitical issues in different ways, addressing life and its value, reflecting on the evaluative hierarchy of various life forms, scrutinising the relationship between the living and the non-living, weighing in on the complementation of living beings with cyborg accessories, and finally asking whether life should be viewed as limited to the individual outside the context of its animate and inanimate environment, outside the inner and outer network of potentialities. The answer that Schubert, Pevere, and Żyniewicz are advocating is posthuman shift.



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The ontological certainties of self and other are swept aside in favour of an inter- and intracorporeality, which does not override difference but repositions it as a multiple, fecund, genetically transformed and never finished chimeric existence. In short, we are asked to embrace a decidedly posthuman ecology.

MARGRIT SHILDRICK

Bioart, Membranes and Micro-Biologies: Transforming the Production of Knowledge



What is at stake in naming *Membranes Out of Order* as bioart, what does it mean to the artists themselves, and what should visitors expect to experience? I make no attempt to define bioart as such, to subject it to the grasp of a categorising knowledge, but simply note that it thrives on an inherent dynamism and performativity of affect that draws the viewer into unfamiliar worlds which are yet all around us. It engages with our sense of response-ability (Haraway 2008, 2016) in foregrounding the encounter with the previously unseen, unheard and untouched, in which the individual self is both profoundly disturbed and called on to (re)act. Lori Andrews' early observation that bioart enables society to 'confront the implications of its biological choices, understand the limitations of the much hyped biotechnologies, develop policies for dealing with biotechnologies, and confront larger issues of the role of science and the role of art in our society' (2009: 139) is a worthy summary, but it falls short of the contra-normative, and often decidedly queer, possibilities that the practice opens up.

In the 21st century, relationships between biotechnologies, biopolitics, Life and living entities have been central to both theoretical and artistic endeavour, especially in the forum of feminist and queer thought. All these things come together in *Membranes Out Of Order*, a conjoined event that exemplifies the multiple and diverse directions that bioart can take. I shall highlight just a few works of the three artists involved – Margherita Pevere, Theresa Schubert and Karolina Żyniewicz – which demonstrate some uncanny crossovers but also moments of divergence and contradiction, with Żyniewicz rejecting the identity of a bioartist, even as her work embodies some of that term's most characteristic tropes. I have deliberately used the term 'conjoined,' rather than 'joint,' to indicate that *Membranes* is no simple sharing of a gallery space or at best an interface between distinct perspectives, but an intermingling of technics and *technē* that blurs the boundaries between individual and collective input and between research and artwork. More than that, the viewers are an essential part of the creative

project, not only in terms of their experiential responses – delight, horror, disgust, curiosity and/or confusion – but also as an irreducible, albeit ever-changeable, aspect of the living environment of the gallery. As an aspiration at least, bioart offers not a spectacle as conventional exhibitions might do, but a collapse of the distance between the artist, the works and the viewers. Alongside a recognition of mutual complicity, some participants may of course resist, but all are engaged – through such everyday actions as breathing, coughing, moving from an outside to the inside, touching and sniffing – in a spatial ecology, which, to use Jane Bennet's term (2010), pulsates with vibrant matter. Bioart is never less than an immersive experience.

In effect, bioart transcends the distancing closure of representational images by drawing attention to the entanglement of all sorts of living entities, from highly complex macro bodies right down to the microscopic organisms – cells, bacteria, viruses and more – that inhabit the environment all around and in us. That is not to say that the three artists each respond by fully embracing the complexity of a bioenergetic and seemingly chaotic interaction between disparate elements. Our entire culture, in the global North at least, is predicated on a distinction between inside and outside, human and non-human, nature and technology, life and death, and so on, which privileges the boundaries of containment. The Covid-19 pandemic has thrown into sharp relief the human desire to insulate its kind against supposedly pathological others through measures such as quarantine, mask-wearing, vaccination and, for many disabled or chronically ill people, a state of social isolation. While Covid itself is undoubtedly pathological, the drive for immunity against such threats extends to many other forms that are benignly symbiotic. In the last few years, we have become aware that the human microbiome, which consists of the totality of micro-organisms living on and in the body, has broadly beneficial and often essential effects on

health and well-being. There is mutual exchange, especially in the gut, where neither the host (you or me) nor the guest (a microbe) could flourish or even survive without such interaction (Shildrick 2022a). While many people are fully aware that bacteria constitute a significant proportion of the gut microbiome, it is less well known that viruses are even more prevalent, and that from the very earliest time of human history, they have been the driver of the development of the immune system itself and of specific organs, such as the placenta, which is an essential component of all mammalian reproduction (Shildrick 2022b).

At one level or another, each of the artists is deeply concerned with the microbial world, though as I have indicated, they approach it in very different ways. Where Pevere and Schubert openly explore the impossibility of shutting down our entanglements with multiple others, Żyniewicz provokes an intriguing meditation that seems initially to hold out the promise of containment. She shows herself to be unafraid to confront and perhaps to manage what others find abject, as in the leaking putrid flesh of *Non Omnis Moriar*, yet any regulation is surely an illusion. The decomposing meat is never simply dead, as it provides the scaffold for myriad complex microbial processes, and what remains are different registers of ongoing life. A similar scenario haunts *safe suicide*, in which it is the artist's own extracted cells – which she was able to immortalise in lab conditions – that are deliberately killed in vitro. But who or what exactly is destroyed? The meticulous notes and diagrams that accompany the installation imply that Żyniewicz – in her guise as an autonomous western agent – is in control, but we are left wondering whether the alienated cells are still part of her embodied self. The implicit question of distributed identity recurs strongly in *The Last Supper*, where Żyniewicz infuses a yeast culture with her own DNA to make beer and bread, which she serves to her assembled 12 'disciples.' Although at the centre of the performance and

surrounded by colleagues, who evoke at first a relaxed demeanour and then a certain anxiety as they incorporate the non-self cells, the artist cannot know the final outcome. There is a strong element of irony at work that indicates that Żyniewicz is fully aware of what is at stake.

Similar issues of toxicity and the permeability of the body are central to the output of both Pevere and Schubert, though they are worked through in less well-known mediums. What criss-crosses between all the artists is the place of membranes in mediating the ways in which what have seemed to be fixed categories leak and flow into one another. Membranes come in many different configurations. Some occur naturally, such as the skin that covers animal bodies, the biofilms that form on hydrated surface, various mucosae and the outer coating of cellular material, while others are synthetic, such as Covid masks and the polymer Gore-Tex in your hiking jacket, and result from technological processes. Though membranes may primarily act as a barrier against contamination by alien elements, their very nature is to allow a selective incursion – and often an exchange – of differential materials. In other words, membranes are inherently leaky and facilitate a constant traffic of molecules, ions, DNA, cellular material and other chemical reactors. The categories of inside and outside, self and other, body and environment are both preserved and intimately deconstructed by membrane activity. As feminist science scholar Samantha Frost points out, cell membranes are not solid, but form a fluid mosaic of ever-changing channels, pores and entrances, which exist 'not to prevent entry and exit but rather to allow and ensure them' (2016: 67). Without membranes, the organism could not develop and would swiftly die.

For Pevere membranes and biofilms are a major force in both her artworks and performance pieces. Her fascination with the viscosity of organic matter signals her openness to the radical instability of her materials in both their growth

and their decomposition and decay, as in the sensorily challenging *Lymph* installation. When she makes her own body part of the artworks, Pevere acknowledges her own impermanence but not the anticipated inevitability of death, which drives the values of western cultures. Here, the absolute distinction between life and death, the living and the non-living, is queered and displaced by the non/living (Radomska 2016), an ambiguous state that blurs not only the temporal boundaries but also those of the organic and the inorganic. Like much of Pevere's other work, the *Wombs* series exemplifies the energetic flows of bodily fluids – urine, saliva, vaginal excretions, lymph, mucus and breast milk – that link the materiality of human bodies to the hydrocommons, 'in which complex interactions between nature, matter, culture and affect are staged' (Janečáková 2021: np). In the concept of the hydrocommons, our own watery biologies are irreducibly entangled with the other-than-human bodies of water with which we are intimately connected and co-constituted (Neimanis 2016), an avenue of thought that reappears in Schubert's work on ancient glacial melt water. It is always a delicate relationship constantly at risk of fluctuations – scarcity and overflows – that speak to the vulnerability of embodiment. Pevere deliberately embraces this vulnerability, as many bioartists do, by in one piece extracting hormones from her own urine and culturing them with bacterial colonies; and in another mixing her vaginal cells with slug egg cells in a shared growth medium. We can witness the resulting biofilm formation, but what new ecologies are actually created by the mutual exposure?

For many people, the sliminess of slugs borders on the abject, another common incitement of bioart. In Kristeva's seminal usage (1982), the abject refers to that which 'does not respect boundaries, positions, rules. The in-between, the ambiguous, the composite' (1982: 4). It is neither self nor other, and though disturbing, it can never really be cast off. Schubert's project

mEat me, where she eats cooked meat cultured from her own thigh muscle cells and offers it to an audience to taste and swallow, stages just such an ontological, epistemological and ethical provocation. In Schubert's work, things escape their conventional placement and classification, turning familiar materialities into something else. Her deep interest in the natural world is evident throughout, with her experiments with fungi reflecting the current bioscientific and philosophical fascination with mycology (Sheldrake 2020). Schubert does not reify nature but demonstrates that growth and change occur through a variety of intertwined biological, algorithmic, and technical processes that can often be represented digitally. Nothing is just one thing or another; rather, everything is a complex admixture of forces. Membranes and biofilms expand and coalesce into startling new pathways, always abject and somehow uncanny, even when desirable. The proliferation of slime mould from a few microorganisms (bodymetrics) – often a singular bacterium – to macro-communities that share nutrients and defensive strategies, respond collectively to environmental changes and appear to have some form of dispersed intelligence is an apt illustration of entangled and co-operative action. It is a powerful reminder that the privileging of human autonomy and rationality is misplaced.

In its meticulous detailing and juxtaposition of the strange and unknown recesses of what constitutes knowledge of the world, *Membranes Out Of Order* may at times remind the visitor of 17th-century cabinets of curiosity (*Wunderkammern*). Whilst a similar stimulation of enquiry and further speculation is intended, the striking difference is that the contemporary exhibition is not a celebration of the reach of knowledge regarding discrete objects. On the contrary, the purpose is to set out the intimate and interwoven connections between things, both organic and inorganic, and to demonstrate that there is no coherent moment of truth. To this end, the many aspects of research – written and illustrated notebooks,

experimentation, interdisciplinary collaborations, waste materials, personal collections of *objets trouvés* – are all included as part of a provisional construction of new knowledge. Such an open-ended process exemplifies the multiplicity and unpredictability of what we think we know: there are no epistemological givens but, in any slice of time, simply more or less significant assemblages of knowledge production. In the face of that lack of closure, both artists and audiences experience vulnerability, sometimes as a negative attribute, but more often as a horizon of opportunity. What is consistent in the midst of flux is the ethical demand for response-ability.

Above all, the intersections and co-dependencies of art, technologies and biologies fundamentally question our anthropocentric bias and encourage us to fashion new imaginaries. The three artists all engage in extensive laboratory research where the network of human and other-than-human agencies defamiliarise expectations of hierarchical control and of intelligence centred on human endeavour alone. The art works are neither a disavowal nor an affirmation of biotechnologies but rather a critique that demands different ways of thinking. Death, memory and nostalgia occur across the installations; however, they no longer feature as solely human attributes but are framed as a distributed existential state that speaks to current fears and to the hopes of a reconfigured future. The ontological certainties of self and other are swept aside in favour of an inter- and intracorporeality, which does not override difference but repositions it as a multiple, fecund, genetically transformed and never finished chimeric existence. In short, we are asked to embrace a decidedly posthuman ecology.



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Touching Invisible Membranes: About Accessibility



34

Sensitivity to the biological and social membranes, liminal zones and minorities prompted us to conceive an accessibility concept for our exhibition as integral to responding to the current critique of ableism. In our practices, we constantly probe what the body can and is allowed to do, yet our professional field(s) generally overlook(s) accessibility. This produces an epistemic and ethical contradiction. Our understanding of accessibility is related to caring about all human and non-human living beings engaged in our project trajectories, including their exhibiting stage. *Membranes out of Order* was created as a safe and inviting environment where visitors can come not only to look at things but also to talk with us and each other. The programme of guided tours, talks and discussions promotes the fostering of dialogue with various audiences. Similarly, as it was our intention to unveil the processes of our work practice and to

afford an insight into rarely, if ever, seen research materials, we decided to extend our disclosure approach to the accessibility of the exhibition. For us, this also involved highly welcome procedures of metaphorical reflection on the nature and materiality of our works.

Conceiving accessibility for the show confronted us with some areas of friction with which we worked. One of them concerned the limited resources of an independent project that lacked the structure to establish fully accessible practices. However, as practitioners with varied professional experiences, we combined the insider's understanding of the field with the valuable experience of one team member. Karolina Żyniewicz had previously worked at the education departments of the Museum of Modern Art in Warsaw and the Zachęta National Gallery of Art in Warsaw, where she had facilitated accessibility for

audiences with visual and cognitive impairments. She could thus weave together the insider's understanding of artistic practice and the requisite skills to curate the accessibility of the show.

Our intention, however, sparked another area of friction since we are practitioners with no visual impairment. A meaningful critique of ableism calls for the involvement of disabled communities. Therefore, we established a collaboration with the Deutscher Blinden- und Sehbehindertenverband e.V. (DBSV; German Federation of the Blind and Partially Sighted) and consulted Reiner Delgado, a DBCV official, at each stage of developing our show. He reviewed the guided tour script and transcribed the written exhibition materials into Braille. Liza Vasiljeva collaborated on the process as an assistant. It was a unique chance for the entire *Membranes* artistic team to learn new methods of making visual arts accessible to visually impaired visitors.

Working on the accessibility of an exhibition always requires accepting certain limitations. The audio description should give a comprehensive impression of the show, but it must not overwhelm the visitors by being too long. Hence, the narrative of our exhibition had to be adjusted by selecting certain elements and leaving others out. In the end, the accessibility of the *Membranes out of Order* exhibition was founded on three elements:

1. Direct experience of the show: on Fridays and Sundays, Karolina Żyniewicz and Liza Vasiljeva had shifts in the gallery dedicated to visually impaired visitors. A special guided tour was based on the oral description and provided an opportunity to touch selected exhibits and tactile representations prepared by Żyniewicz.
2. Materials printed in Braille, in German and English: the flyer with the descriptions of the rooms and the projects on display; a tactile map of the show, with a short legend. Visually impaired visitors could either check out these materials to visit the exhibition independently or take them home.

3. Audio description of the exhibition available on the project website: a guided tour with audio description for visually impaired visitors has been recorded and uploaded to the *Membranes out of Order* website to make it possible to experience the show after it closed.

While touching artworks is usually forbidden to prevent damage, this was not our concern. Our artworks are neither elevated above their surroundings nor separated from the visitors, nor disconnected from the dynamics of life. Our guests are welcome to interact with the membranes by constructing and reconstructing the co-order we created.

35



[illegible]

1.3

Antihumanism puts an end to the need to consider whether eating someone is socially proper or not. Those who choose to reject it are free of moral constraint. No one, then, can think.

Once the specifics of how someone eats, moves, and breathes is recognized, we can progress beyond a disembodied, solipsistic ego and start to have a fair and just society for all. In ancient Greece, the name "atheism" was mainly used to indicate the view that knowledge of reality is not possible without reliance on a god or other supernatural being. In some circles, this may seem like a crazy view today, but that was probably the position in the ancient world.

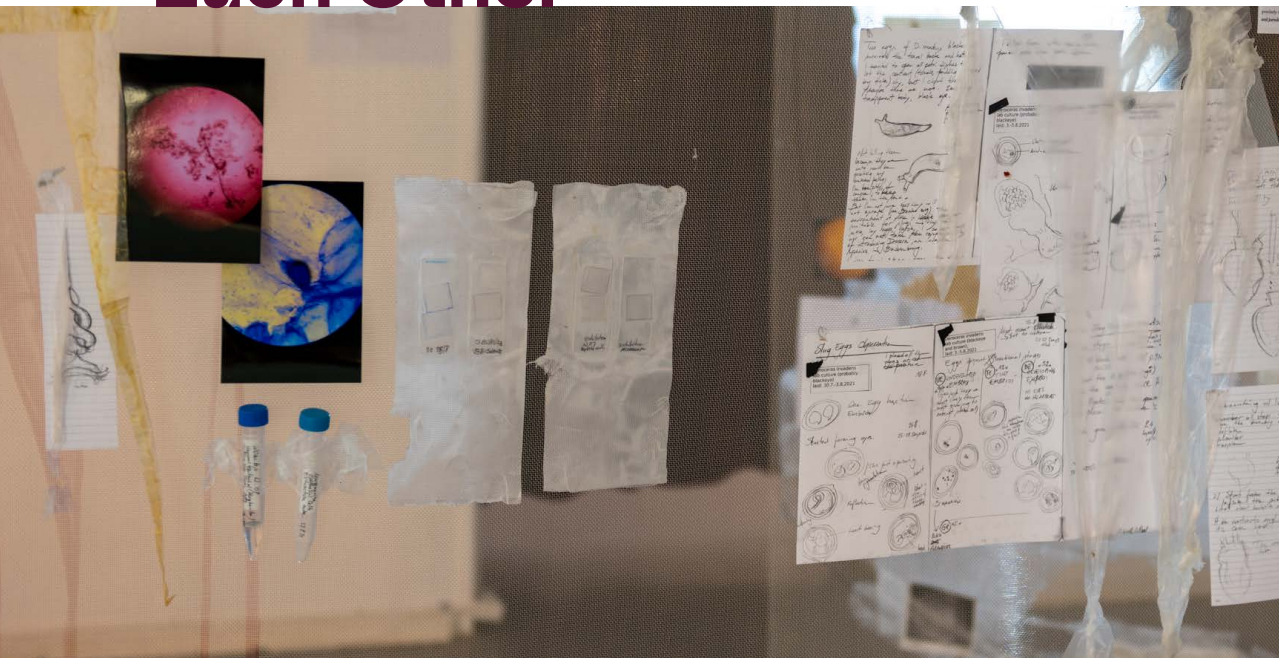
THERESA SCHUBERT

**restless alchemies,
never static**

liturgy of horror



Crossing Membranes: On Our Perceptions of Each Other



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Membranes Out Of Order was not only an exhibition project but also a path to reflection for us. By crossing the membranes of each other's works, each of us could reflect back on her individual practice in the light of our research. As practitioners with many similarities but also strong differences, we found it intriguing to recognise how each of us perceived the works of the other two.

MARGHERITA'S PERSPECTIVE

Insurgence is expressed in Theresa's work through her meticulous study of (and sometimes struggle with) the morphology of shapes and the agency of entities. Her work has evolved from the (now iconic) geometric shapes tattooed onto mushroom caps and the investigation of the

membranous growth of *Physarum polycephalum* to more recent projects on cellular automata and the watery realms in the *Glacier Trilogy* and *Hylē*. Geometries, shapes and algorithms crop up on and traverse the skin and surfaces and become insurgent materialities. I sense an influence of the Bauhaus tradition in Theresa's pursuits (she actually did her PhD at the Bauhaus University in Weimar), where it is confronted with the uncontainable (to use Marietta Radomska's wording) life of biological and algorithmic entities. She creates thick forests of hybrid creatures, such as pixels dancing on screens and sounds shaped by growth dynamics. In these forests, she offers her own body as food to challenge human supremacy. Hers is a restless alchemy, never static, shifting from one project to another in an ever-unfolding network of insurgences.

I love the liturgy of horror in Karolina's work. I can relate to it because we share a similar background as kids who grew up in provincial Poland and Italy and were exposed to Catholic worship ceremonies, pagan rites of killing and food production – life and death intertwined and ritualised – and several taboos, which evidently resurface in her project *The Last Supper*. During the curatorial session, she showed her older works with insects. Playing with Julia Kristeva's notion of the abject, Karolina made a compassionate graveyard of dead insects in soap and wax bars or coffins of soft fabrics. Her recent projects (*safe suicide*, *Synthetic Motherhood*) are as obsessively neat as a surgery room. The way she manipulates and taps into materials, including her own cells in her latest projects, reveals an understanding of material agencies that I have rarely encountered before. Karolina's practice is founded on repetition (how many rectangular coffins did she produce for her insects, and how many times did she kill her cells?), and its merciless, reiterative manner reminds me of Hanne Darboven's numerical series.

KAROLINA'S PERSPECTIVE

I find geometric elegance in creating systems essential to Theresa's practice. She combines natural processes and computer programming, biological experimentation and new media arts. Her videos and interactive artworks do not simply convey what she has found in her research. She replaces some membranes and in this way reorganises the phenomena captured in her pieces. It is also my view that new technological systems are not entirely manageable and can slip out of control but I think that Theresa skilfully handles this lack of control (or: exceptionally well), converting it from a liability into an asset in her art. Each of her setups functions as a new order, and she works with many different living beings. While there is no evident continuity between her consecutive projects, I believe that the systematisation and organisation of membranes is a common thread that binds them all. Theresa

is not an expressionist; she is calm and subtle, which does not mean that her work lacks strength or ground-breaking potency. The power of her projects is rooted in simplicity and the selection of details. I highly appreciate the visual and metaphorical language that she has crafted and consistently uses, regardless of the theme with which she engages.

In Margherita's work, membranes are present very physically, as a cellulose skin, layers of paper and her own skin. Similarly to Theresa, Margherita tends to create orders. She does that in her very unique way. What I have found significant in the general trajectory of her practice is writing, not only in the sense of language-based communication, but also in the sense of an embodied activity and a manually performed action. Her writing is abstractive and tattoos her physical and symbolic membranes. She writes a story of natural, social and cultural phenomena without using any particular words. She disrupts biological matter with writing that does not carry any verbally encoded meaning. She is a vector of storied matter, translating the messages coming from this matter in a ritualistic, performative way. In her work, communicating involves playing with genetic codes, which she uses to insert information into living bodies. The code is usually regarded as the essence of life, so her writing, though abstractive, exerts a real influence on the functioning of the organisms in her projects. Similarly to Theresa, Margherita realises that changes are unavoidable in her messages, which are deformed by transforming biomatter, and she likewise accepts that she is not in control. I find Margherita's work poetic and ephemeral, but at the same time embodied and down-to-earth. Embracing this paradox makes Margherita's work very strong.

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THERESA'S PERSPECTIVE

Karolina's graves for insects and rats perfectly exemplify the *Membrane* concept, in my view. In this untitled piece, she bought corpses of rats and placed them together with burial beetles, a species that feeds on dead flesh and tissues until its offspring exit the carcass as grown specimens. We see here how membranes are ruptured, and bodies are metamorphosed but also cared for with attention. In Karolina's work, life and death are connected in a flow of transformation, and what seems cruel or disgusting to one makes life possible for another. However, Karolina does not simply put the corroded corpses on display; rather, she constructs little coffins padded with a white fabric in an act of gentle care. Hanging on a wall, the coffins ultimately become frames, showcasing the morbid beauty of decay and Karolina's deep material fascination, which is visible in all of her works. In other pieces, she covered the collected insect bodies in the self-grown Kombucha skin. These organic shrouds abstracted or hid the corpses and made us wonder what was inside. Notably, Karolina not only studies or collects insects, but also, quite unperplexed, she lived with them as more-than-human flatmates, literally practising zoë-egalitarianism. Personally, I can fully relate to her performance *The Last Supper* because of its central processes. While Karolina's work is most obviously a religious re-enactment/ commentary in the setting of a biotech laboratory, my project *mEat me* shares with hers the act of donating one's own body and producing food for human consumption out of it.

Margherita and I have shared a studio for several years now, and I have had ample opportunity to witness the development of some of her works by seeing the rearrangement of materials on her desk, the cultivation of species or the making of sculptural prototypes, and watching them change over time. What has always struck me in her work is her eye for aesthetic detail and her profound thought process. Margherita has a fascination

with fluids produced by humans and other species. This interest emanates, for example, from her long-standing work with bacterial cellulose, where she has grown fleshy membranes in liquid cultures. With her *Wombs* series, Margherita has consistently engaged in cross-species cultivation as part of her discussion of sexuality and contraception. As a curator, I exhibited the first piece of the series in 2018 and have watched its evolution with curiosity ever since. This project is not only an intimate exploration of Margherita's own body, but also an avenue to macroscale and outer ecologies. Put on display, the co-culture of slug embryonic cells and Margherita's vaginal epithelial cells opens a space for trans-species encounters and performative presences of the unknown. I particularly like this open-ended and uncertain approach in the otherwise well-defined work that grants agency to possible future responses or imaginations of alien growth.



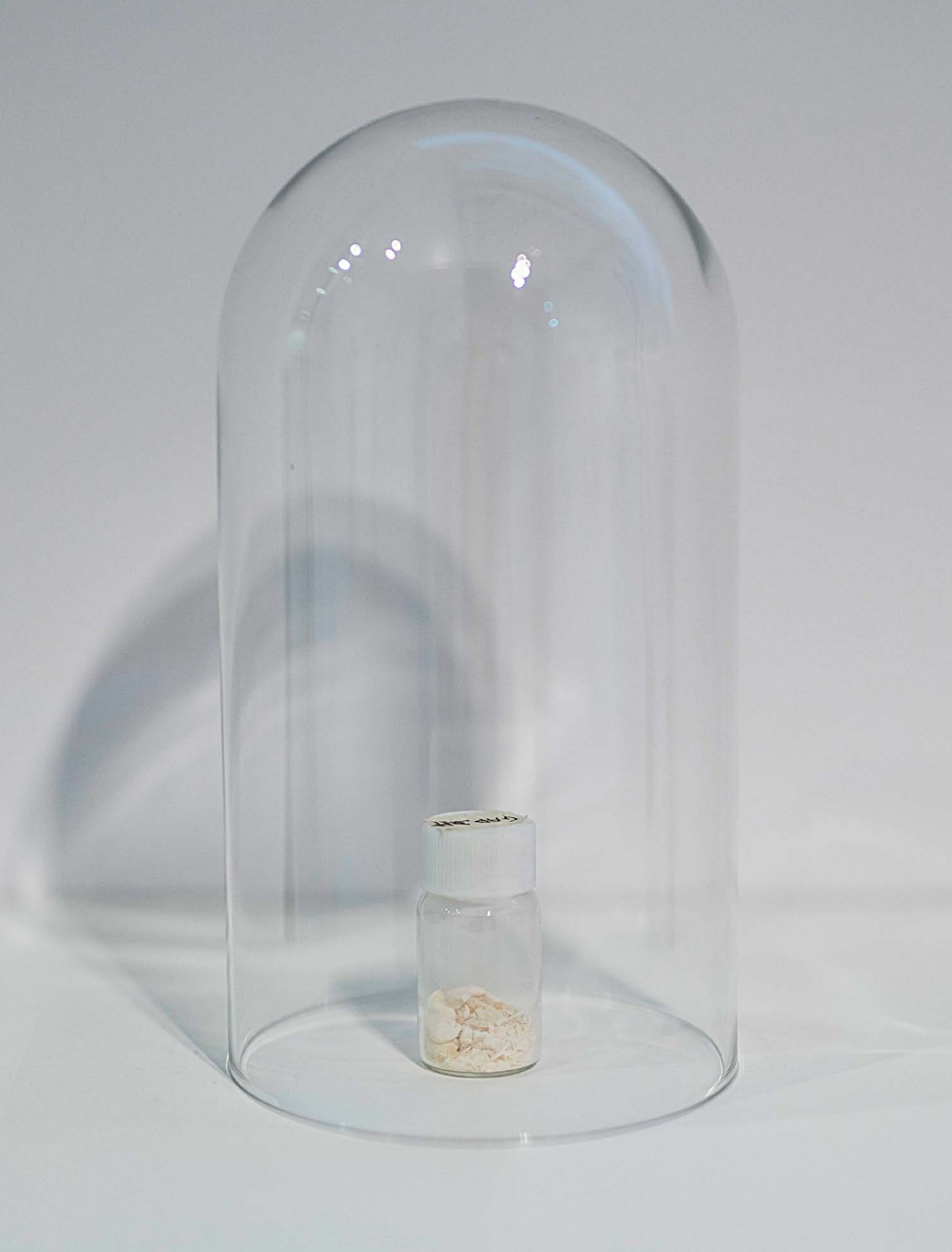
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KAROLINA ŻYNIEWICZ

Karolina Żyniewicz is an internationally recognizable artist (2009 graduated from the Academy of Fine Arts in Łódź, Department of Visual Arts), researcher and PhD student (Nature-Culture Transdisciplinary PhD Program at Artes Liberales Faculty, University of Warsaw). She calls herself a liminal being because her work is “in-between” art, biotechnology, humanities, and anthropology. She mainly focuses on life in its broad understanding (biological and cultural meaning). Her projects have conceptual and critical character. She tries to put her observations, as an artist/researcher (liminal being), in the context of Science and Technology Studies (STS) and feminist humanities.

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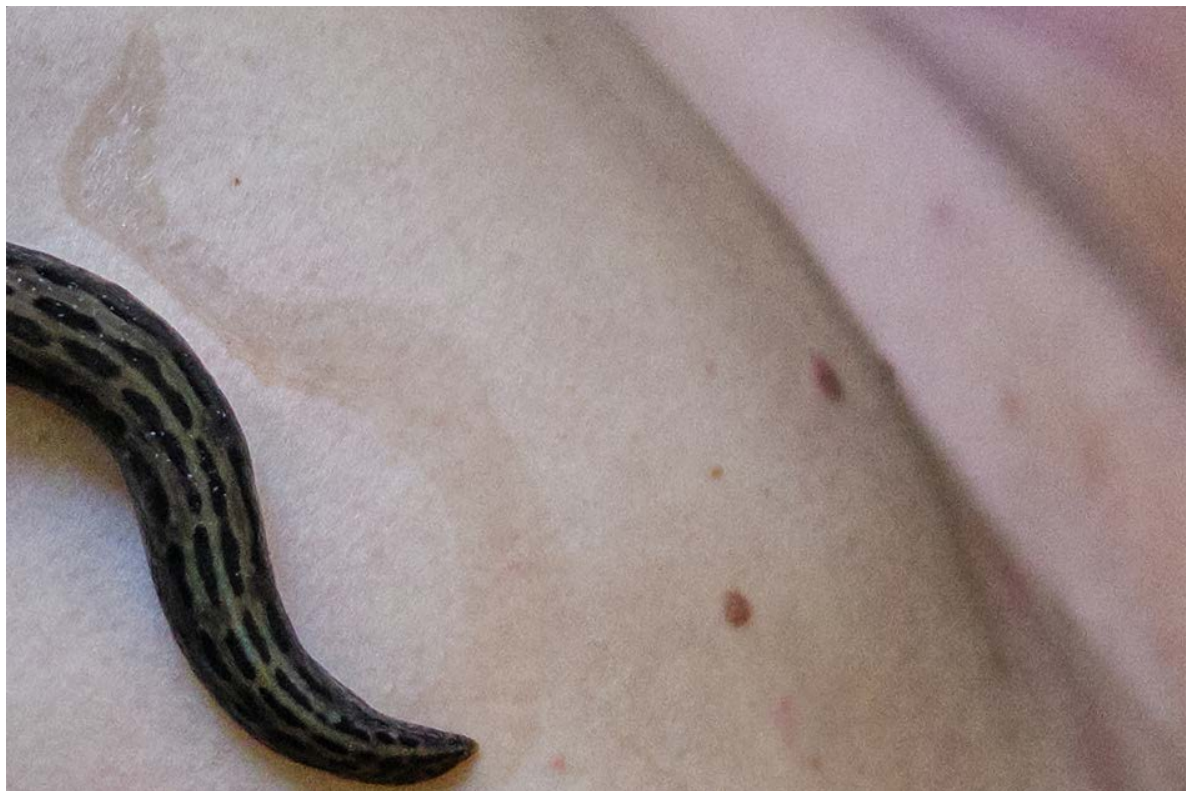


MARGHERITA PEVERE

Margherita Peveri is an artist and researcher working across biological arts and performance with a distinctive visceral signature. Her inquiry hybridizes biotechnology, ecology, queer and death studies to create arresting installations and performances that trail ecological complexity. Her body of work is a blooming garden crawling with genetically edited bacteria, cells, sex hormones, microbial biofilm, blood, slugs, growing plants and decomposing remains. She co-founded the artists' group Fronte Vacuo. She completed a PhD at Aalto University and is member of the Finnish Bioart Society, of The Queer Death Studies Network and of The Eco- and Bioart Lab.

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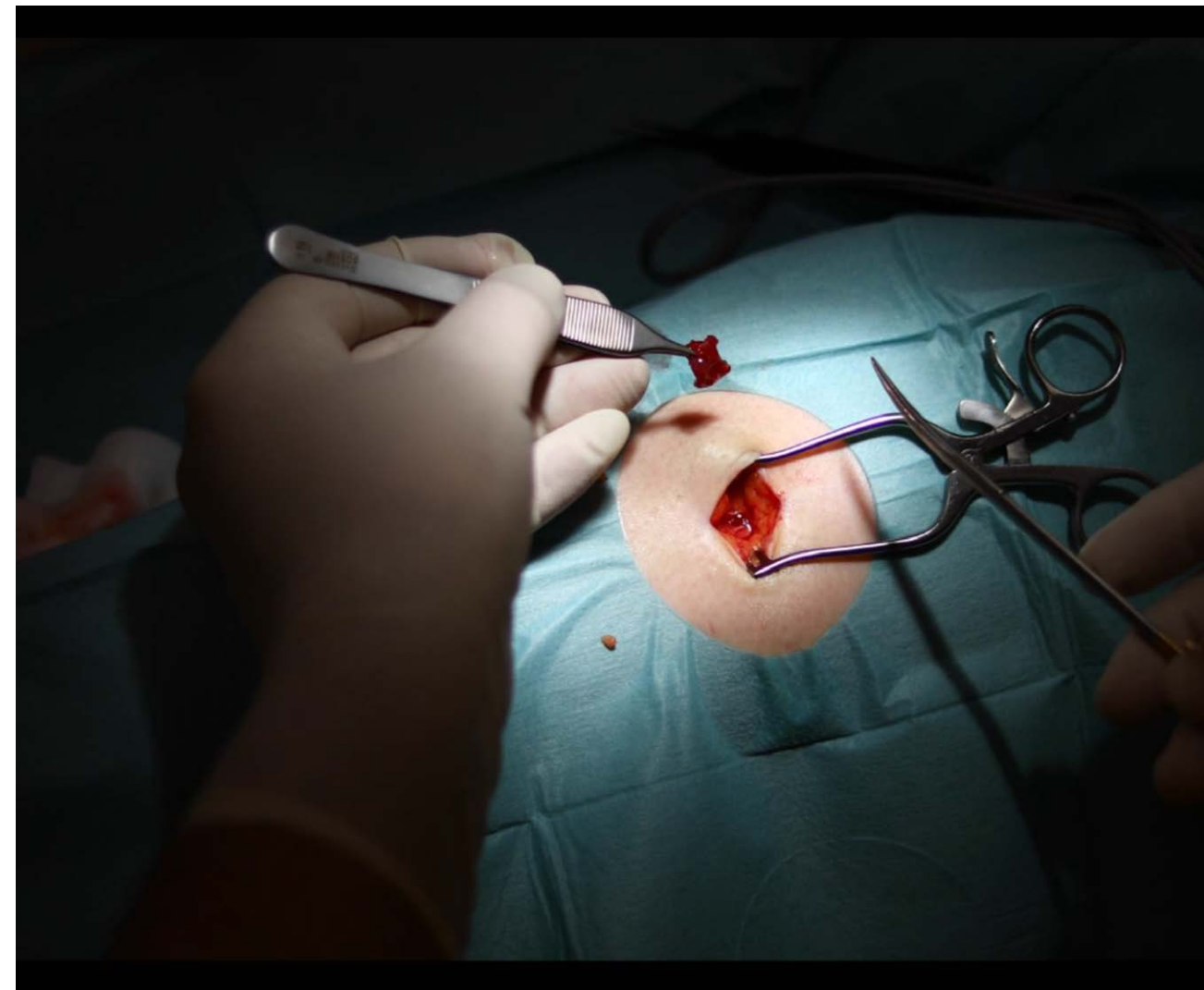
THERESA SCHUBERT

Theresa Schubert is a Berlin-based artist, researcher and curator exploring unconventional visions of nature, technology and the self. In an aesthetic between alchemy and science fiction, her multiple award-winning works question anthropocentrism and enable alternative visions and/or new sensory experiences. Schubert holds a PhD in Media Art from Bauhaus-University Weimar. Her practice includes organic matter and living organisms, algorithms and artificial intelligence becoming part of the artwork not just as material but meaningful co-creators.

[Her works received awards such as a Prix Ars Electronica Honorary Mention 2021, a STARTS Prize 2021 Honorary Mention or the Award of Distinction at the Japan Media Arts Festival 2022.]

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Olga Majcen Linn is a curator based in Zagreb. She holds a PhD in arts and media from the Faculty of Media and Communications, Belgrade. In 2002 she co founded the nonprofit organization KONTEJNER, which presents contemporary art on the intersection with technology, science, and live art. Among her most significant curatorial projects are the Touch Me Festival, the Device_art Festival, the Extravagant Bodies Festival, and DIY_ARTLAB. In the course of her curatorial work, Linn has authored and/or published more than a dozen books, catalogs, and readers. She is a guest lecturer at the Academy of Fine Arts in Zagreb (Art at the Intersection of Science and Technology).

MARGRIT SHILDRICK

Margrit Shildrick, Guest Professor of Gender and Knowledge Production at Stockholm University, is known for her research covering postmodern feminist theory, bioethics, critical disability studies, body theory and posthumanism. Her most recent publication - Visceral Prostheses: Somatechnics and Posthuman Embodiment (2022) - traces the significance of the biophilosophical and embodied conjunction of microchimerism, immunology and corporeal anomaly. She is currently doing research for a collaborative project which addresses the gift relation as one of posthumanist entanglement not exchange.

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At a time when the interplay between biotechnology and ecology poses unprecedented ethical and cultural challenges, this publication presents thought-provoking artistic practice, queer interventions and feminist approaches around contemporary taboos.

The Berlin show "Membranes Out Of Order" positioned itself at the forefront of international conversations around art, science and biopolitics by presenting the daring artworks and rigorous research of Margherita Pevere, Theresa Schubert and Karolina Żyniewicz. Simultaneously an exhibition catalog and philosophical inquiry, the book features texts by the three artists, philosopher Margrit Shildrick and art critic Olga Majcen Linn.

